STOICHIOMETRY PRACTICE PROBLEMS

Make sure equations are balanced before working!!!!!!

1. What mass of sodium chloride can be formed by reacting 5.00g of sodium bicarbonate with hydrochloric acid?

$HCl\ (aq) + NaHCO_3\ (s) \rightarrow CO_2\ (g) + H_2O\ (l) + NaCl$

2. Ammonia reacts with oxygen to form nitrogen monoxide and water. What mass of nitrogen monoxide can be formed from 15.00 g of oxygen reacting with excess ammonia?

$NH_3\ (g) + O_2(g) \rightarrow NO\ (g) + H_2O\ (g)$

3. What mass of both P4O10 and KCl can be formed by reacting 52.9 g of potassium chlorate with excess phosphorous?

$KClO_3(s) + P_4\ (s) \rightarrow P_4O_{10}\ (s) + KCl\ (s)$

4. Phosphorous can be prepared from calcium phosphate by the following reaction:

$Ca_3(PO_4)_2\ (s) + SiO_2\ (s) + C\ (s) \rightarrow CaSiO_3\ (s) + P_4\ (s) + CO\ (g)$

5. What mass of F_2 is needed to form 120.0 g of PF_3?

$P_4\ (s) + F_2\ (g) \rightarrow PF_3\ (g)$

6. If 100 g of P_4 reacts with 75 g F_2 in the above reaction, what is the limiting reagent? How many grams of PF_3 are then formed?

7. Bornite (Cu_3FeS_3) is a copper ore used in the production of copper. What masses of Cu, FeO, and SO2 are formed by the reaction of 55.0 g of bornite with oxygen?

Cu_3FeS_3 (s) + O_2 (g) → Cu (s) + FeO (s) + SO_2 (g)

8. If 55.0 g bornite reacts with 10 g oxygen, what is the limiting reagent?

9. From your answer to #8 above, how many grams of Cu, FeO, and SO_2 are formed?

10. What mass of hydrogen cyanide can be formed by reacting 5.00×10^3 g of CH_4 with ammonia and oxygen?